Tyler McCarthy

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Objectives

Seeking full time positions in software engineering - especially security engineering - in San Francisco; to develop a mastery of proper and secure software development, and to master the use of tools that help achieve those goals.

Employment

Edmodo - Security Engineering Intern — San Mateo, CA — May - Aug 2015

- Designed, built, tested and deployed to AWS - service that detects malware and analyzes text in hundreds of user–generated content submissions per minute in arbitrary file format
  using Python, Flask, Apache Tika, Docker
- Designed, built, tested and maintained a moving-window rate limiting service covering entire platform, improving considerably over previous PHP implementation
  using Python, Apache Thrift, Docker, Redis
- Tested, confirmed, corrected, and documented security holes in PHP backend code
- Built a tool to automatically detect & fix mixed content on Wordpress blog pages
- Light DevOps work in Amazon Web Services

Grand Valley Surplus Store - Student IT Technician — Grand Rapids, MI — Jun - Sep 2014

- Managed FOG disk imaging server, ensured data destruction and reimaging of hundreds of computers with Linux; directly aided customers at checkout and during sales

Skills & Experience

Programming Languages

Strong: Python, Java, C, C#, BASH
Some exposure: PHP, Ruby, Haskell, Lisp
Learning: OpenGL & GLSL, Swift 2, C++, JavaScript

Operating systems

- Extensive Linux (Arch Linux, CentOS, Ubuntu, others)
- Windows 7, 8.1 & 10; Windows Server 2008 & 2012

Computer / System Security

- Functional familiarity with OWASP Top Ten
- Secure network architecture, firewall
- Practical crypto, IDS, honeypots
- Pentesting in Nmap, Zenmap, Metasploit & Armitage
- Linux server hardening experience

B.S., Computer Science

Grand Valley State University Dec. 2015

Technologies

- Apache Thrift, Apache Tika
- Docker, Amazon Web Services mgmt.
- Mysql, Postgresql, Sqlite, Redis

Programs & Environments

- Android Studio, Eclipse, Visual Studio
- Unity 5, Unreal Engine 4.5

Extracurricular (CS Related)

Computer Security Team - Team Leader - Grand Valley State University

- Organized meetings & team practice, researched and taught skills to 12 member students
- Coordinated with GVSU faculty to set up training network & organized training sessions
- Team competed in 2014 Michigan Collegiate Cyber Defense Competition
- Analysis and practice of incident reporting

Served as team leader for the 2013 - 2014 school year Computer Security Team at GVSU. Team objectives were to study and practice a variety of cyber defense concepts and techniques, including secure server configuration, secure network infrastructure, defense against common exploits, and attacking other teams in a CTF simulation.

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Curriculum (Computer security)

CIS 458 - System Security

Practical use of high and low level security concepts, including:

- Cryptography (symmetric/asymmetric, PGP, RSA, SSL/TLS, Digital Signatures, CA's)
- Intrusion Detection (Tripwire in dpeth, Snort, Bro) Honeypots (Honeyd)
- Malware (Exploits, including. Virus polymorphism, Metamorphism, detection techniques)
- Network Security (Monitoring Incl. ML Concepts, Firewalls, Network Structuring, DMZs)
- Operating system security, access control, trusted systems

CIS 375 - Wireless Networking Systems

Survey of networking concepts, emphasizing security, of wireless systems

- Wireless attacks (MDK3, Reaver, ARP poisoning) & defense against those attacks
- WEP & WPA cracking
- Bluetooth 4.0 security

MTH 312 - Cryptography

Overview and dissection of encryption schemes and techniques in Mathematica

- Conceptual overview of functional cryptosystems & historic cryptosystems
- Symmetric & Asymmetric cryptosystems incl. RSA, ElGamal, DES, AES
- Cryptographic hashes, & password verification. SHA, MD5, Salting
- Secure key exchange

CIS CIS 358 - Information Assurance

Survey of security and infosec concepts

- Fundamentals of information security & assurance
- Types of threats, attacks, risks & methods of mitigation
- Access control models, network monitoring

Voluntarism & Student Organizations

Student Environmental Coalition - Grand Valley - Treasurer — Sep - Dec 2013

- Balanced budget; wrote and presented funding requests, helped organize service events
- Secured 100% funding for 20 student attendees to Powershift environmental conference

Center For Inquiry – Grand Valley - Vice President, Treasurer, Service Coordinator — 2011 - 2013

- Helped coordinate and execute speech by Neil deGrasse Tyson at GVSU (4,000 attendees)